



## SEQUENCE LISTING

&lt;110&gt; Gorman, Daniel M.

&lt;120&gt; MAMMALIAN RECEPTOR PROTEINS; RELATED REAGENTS AND METHODS

&lt;130&gt; DX01170K

&lt;140&gt; 09/863,818

&lt;141&gt; 2001-05-23

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&lt;160&gt; 22

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&lt;210&gt; 1

&lt;211&gt; 1796

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

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cca gag tgg atg cta caa cat gat cta atc ccg gga gac ttg agg gac 144  
Pro Glu Trp Met Leu Gln His Asp Leu Ile Pro Gly Asp Leu Arg Asp  
20 25 30

ctc cga gta gaa cct gtt aca act agt gtt gca aca ggg gac tat tca 192  
Leu Arg Val Glu Pro Val Thr Thr Ser Val Ala Thr Gly Asp Tyr Ser  
35 40 45

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Ile Leu Met Asn Val Ser Trp Val Leu Arg Ala Asp Ala Ser Ile Arg  
50 55 60 65

ttg ttg aag gcc acc aag att tgt gtg acg ggc aaa agc aac ttc cag 288  
Leu Leu Lys Ala Thr Lys Ile Cys Val Thr Gly Lys Ser Asn Phe Gln  
70 75 80

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acc	aga	ccc	tct	ggt	ggt	aaa	tgg	aca	ttt	tcc	tat	atc	ggc	ttc	cct	384
Thr	Arg	Pro	Ser	Gly	Gly	Lys	Trp	Thr	Phe	Ser	Tyr	Ile	Gly	Phe	Pro	
		100					105					110				
gta	gag	ctg	aac	aca	gtc	tat	ttc	att	ggg	gcc	cat	aat	att	cct	aat	432
Val	Glu	Leu	Asn	Thr	Val	Tyr	Phe	Ile	Gly	Ala	His	Asn	Ile	Pro	Asn	
	115					120					125					
gca	aat	atg	aat	gaa	gat	ggc	cct	tcc	atg	tct	gtg	aat	ttc	acc	tca	480
Ala	Asn	Met	Asn	Glu	Asp	Gly	Pro	Ser	Met	Ser	Val	Asn	Phe	Thr	Ser	
130					135					140					145	
cca	ggc	tgc	cta	gac	cac	ata	atg	aaa	tat	aaa	aaa	aag	tgt	gtc	aag	528
Pro	Gly	Cys	Leu	Asp	His	Ile	Met	Lys	Tyr	Lys	Lys	Lys	Cys	Val	Lys	
				150					155					160		
gcc	gga	agc	ctg	tgg	gat	ccg	aac	atc	act	gct	tgt	aag	aag	aat	gag	576
Ala	Gly	Ser	Leu	Trp	Asp	Pro	Asn	Ile	Thr	Ala	Cys	Lys	Lys	Asn	Glu	
			165				170						175			
gag	aca	gta	gaa	gtg	aac	ttc	aca	acc	act	ccc	ctg	gga	aac	aga	tac	624
Glu	Thr	Val	Glu	Val	Asn	Phe	Thr	Thr	Thr	Pro	Leu	Gly	Asn	Arg	Tyr	
		180					185					190				
atg	gct	ctt	atc	caa	cac	agc	act	atc	atc	ggg	ttt	tct	cag	gtg	ttt	672
Met	Ala	Leu	Ile	Gln	His	Ser	Thr	Ile	Ile	Gly	Phe	Ser	Gln	Val	Phe	
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gag	cca	cac	cag	aag	aaa	caa	acg	cga	gct	tca	gtg	gtg	att	cca	gtg	720
Glu	Pro	His	Gln	Lys	Lys	Gln	Thr	Arg	Ala	Ser	Val	Val	Ile	Pro	Val	
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act	ggg	gat	agt	gaa	ggt	gct	acg	gtg	cag	ctg	act	cca	tat	ttt	cct	768
Thr	Gly	Asp	Ser	Glu	Gly	Ala	Thr	Val	Gln	Leu	Thr	Pro	Tyr	Phe	Pro	
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act	tgt	ggc	agc	gac	tgc	atc	cga	cat	aaa	gga	aca	gtt	gtg	ctc	tgc	816
Thr	Cys	Gly	Ser	Asp	Cys	Ile	Arg	His	Lys	Gly	Thr	Val	Val	Leu	Cys	
			245					250					255			
cca	caa	aca	ggc	gtc	cct	ttc	cct	ctg	gat	aac	aac	aaa	agc	aag	ccg	864
Pro	Gln	Thr	Gly	Val	Pro	Phe	Pro	Leu	Asp	Asn	Asn	Lys	Ser	Lys	Pro	
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gga	ggc	tgg	ctg	cct	ctc	ctc	ctg	ctg	tct	ctg	ctg	gtg	gcc	aca	tgg	912
Gly	Gly	Trp	Leu	Pro	Leu	Leu	Leu	Leu	Ser	Leu	Leu	Val	Ala	Thr	Trp	
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Val	Leu	Val	Ala	Gly	Ile	Tyr	Leu	Met	Trp	Arg	His	Glu	Arg	Ile	Lys	
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aag	act	tcc	ttt	tct	acc	acc	aca	cta	ctg	ccc	ccc	att	aag	gtt	ctt	1008
Lys	Thr	Ser	Phe	Ser	Thr	Thr	Thr	Leu	Leu	Pro	Pro	Ile	Lys	Val	Leu	
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gtg	gtt	tac	cca	tct	gaa	ata	tgt	ttc	cat	cac	aca	att	tgt	tac	ttc	1056
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Thr Glu Phe Leu Gln Asn His Cys Arg Ser Glu Val Ile Leu Glu Lys			
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Trp Gln Lys Lys Lys Ile Ala Glu Met Gly Pro Val Gln Trp Leu Ala			
355	360	365	
act caa aag aag gca gca gac aaa gtc gtc ttc ctt ctt tcc aat gac			1200
Thr Gln Lys Lys Ala Ala Asp Lys Val Val Phe Leu Leu Ser Asn Asp			
370	375	380	385
gtc aac agt gtg tgc gat ggt acc tgt ggc aag agc gag ggc agt ccc			1248
Val Asn Ser Val Cys Asp Gly Thr Cys Gly Lys Ser Glu Gly Ser Pro			
390	395	400	
agt gag aac tct caa gac ctc ttc ccc ctt gcc ttt aac ctt ttc tgc			1296
Ser Glu Asn Ser Gln Asp Leu Phe Pro Leu Ala Phe Asn Leu Phe Cys			
405	410	415	
agt gat cta aga agc cag att cat ctg cac aaa tac gtg gtg gtc tac			1344
Ser Asp Leu Arg Ser Gln Ile His Leu His Lys Tyr Val Val Val Tyr			
420	425	430	
ttt aga gag att gat aca aaa gac gat tac aat gct ctc agt gtc tgc			1392
Phe Arg Glu Ile Asp Thr Lys Asp Asp Tyr Asn Ala Leu Ser Val Cys			
435	440	445	
ccc aag tac cac ctc atg aag gat gcc act gct ttc tgt gca gaa ctt			1440
Pro Lys Tyr His Leu Met Lys Asp Ala Thr Ala Phe Cys Ala Glu Leu			
450	455	460	465
ctc cat gtc aag cag cag gtg tca gca gga aaa aga tca caa gcc tgc			1488
Leu His Val Lys Gln Gln Val Ser Ala Gly Lys Arg Ser Gln Ala Cys			
470	475	480	
cac gat ggc tgc tgc tcc ttg tagccaccc atgagaagca agagacctta			1539
His Asp Gly Cys Cys Ser Leu			
485			
aaggcttcct atcccaccaa ttacagggaa aaaacgtgtg atgacacctga agcttactat			1599
gcagcctaca aacagcctta gtaattaaaa cattttatac caataaaatt ttcaaatt			1659
gctaactaat gtagcattaa ctaacgattg gaaactacat ttacaacttc aaagctgttt			1719
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-5

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Glu Trp Met Leu Gln His Asp Leu Ile Pro Gly Asp Leu Arg Asp Leu  
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Arg Val Glu Pro Val Thr Thr Ser Val Ala Thr Gly Asp Tyr Ser Ile  
 35 40 45 50

Leu Met Asn Val Ser Trp Val Leu Arg Ala Asp Ala Ser Ile Arg Leu  
 55 60 65

Leu Lys Ala Thr Lys Ile Cys Val Thr Gly Lys Ser Asn Phe Gln Ser  
 70 75 80

Tyr Ser Cys Val Arg Cys Asn Tyr Thr Glu Ala Phe Gln Thr Gln Thr  
 85 90 95

Arg Pro Ser Gly Gly Lys Trp Thr Phe Ser Tyr Ile Gly Phe Pro Val  
 100 105 110

Glu Leu Asn Thr Val Tyr Phe Ile Gly Ala His Asn Ile Pro Asn Ala  
 115 120 125 130

Asn Met Asn Glu Asp Gly Pro Ser Met Ser Val Asn Phe Thr Ser Pro  
 135 140 145

Gly Cys Leu Asp His Ile Met Lys Tyr Lys Lys Lys Cys Val Lys Ala  
 150 155 160

Gly Ser Leu Trp Asp Pro Asn Ile Thr Ala Cys Lys Lys Asn Glu Glu  
 165 170 175

Thr Val Glu Val Asn Phe Thr Thr Thr Pro Leu Gly Asn Arg Tyr Met  
 180 185 190

Ala Leu Ile Gln His Ser Thr Ile Ile Gly Phe Ser Gln Val Phe Glu  
 195 200 205 210

Pro His Gln Lys Lys Gln Thr Arg Ala Ser Val Val Ile Pro Val Thr  
 215 220 225

Gly Asp Ser Glu Gly Ala Thr Val Gln Leu Thr Pro Tyr Phe Pro Thr  
 230 235 240

Cys Gly Ser Asp Cys Ile Arg His Lys Gly Thr Val Val Leu Cys Pro  
245 250 255

Gln Thr Gly Val Pro Phe Pro Leu Asp Asn Asn Lys Ser Lys Pro Gly  
260 265 270

Gly Trp Leu Pro Leu Leu Leu Leu Ser Leu Leu Val Ala Thr Trp Val  
275 280 285 290

Leu Val Ala Gly Ile Tyr Leu Met Trp Arg His Glu Arg Ile Lys Lys  
295 300 305

Thr Ser Phe Ser Thr Thr Thr Leu Leu Pro Pro Ile Lys Val Leu Val  
310 315 320

Val Tyr Pro Ser Glu Ile Cys Phe His His Thr Ile Cys Tyr Phe Thr  
325 330 335

Glu Phe Leu Gln Asn His Cys Arg Ser Glu Val Ile Leu Glu Lys Trp  
340 345 350

Gln Lys Lys Lys Ile Ala Glu Met Gly Pro Val Gln Trp Leu Ala Thr  
355 360 365 370

Gln Lys Lys Ala Ala Asp Lys Val Val Phe Leu Leu Ser Asn Asp Val  
375 380 385

Asn Ser Val Cys Asp Gly Thr Cys Gly Lys Ser Glu Gly Ser Pro Ser  
390 395 400

Glu Asn Ser Gln Asp Leu Phe Pro Leu Ala Phe Asn Leu Phe Cys Ser  
405 410 415

Asp Leu Arg Ser Gln Ile His Leu His Lys Tyr Val Val Val Tyr Phe  
420 425 430

Arg Glu Ile Asp Thr Lys Asp Asp Tyr Asn Ala Leu Ser Val Cys Pro  
435 440 445 450

Lys Tyr His Leu Met Lys Asp Ala Thr Ala Phe Cys Ala Glu Leu Leu  
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ggg gga gca gac ctc aaa ggc gac tat aat gcc ctg agt gtc tgc ccc 96  
Gly Gly Ala Asp Leu Lys Gly Asp Tyr Asn Ala Leu Ser Val Cys Pro  
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caa tat cat ctc atg aag gac gcc aca gct ttc cac aca gaa ctt ctc 144  
Gln Tyr His Leu Met Lys Asp Ala Thr Ala Phe His Thr Glu Leu Leu  
35 40 45  
aag gct acg cag agc atg tca gtg aag aaa cgc tca caa gcc tgc cat 192  
Lys Ala Thr Gln Ser Met Ser Val Lys Lys Arg Ser Gln Ala Cys His  
50 55 60  
gat agc tgt tca ccc ttg tagtccaccc gggggaatag agactctgaa 240  
Asp Ser Cys Ser Pro Leu  
65 70  
gccttctctac tctcccttcc agtgacaaat gctgtgtgac gactctgaaa tgtgtgggag 300  
aggctgtgtg gaggtagtgc tatgtacaaa cttgctttta aactggagtt tgcaaagtca 360  
acctgagcat acacgcctga ggctagtcac ttgctggatt tatgaagaca acacagttac 420  
agacaataat gagtgggacc tacatttggg atatacccaa agctgggtaa tgattatcac 480  
tgagaaccac gcactctggc catgaggtaa tacggcactt ccctgtcagg ctgtctgtca 540  
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Gln Tyr His Leu Met Lys Asp Ala Thr Ala Phe His Thr Glu Leu Leu  
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Asp Ser Cys Ser Pro Leu  
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 atg cct gtg ccc tgg ttc ttg ctg tcc ttg gca ctg ggc cga agc cag 228  
 Met Pro Val Pro Trp Phe Leu Leu Ser Leu Ala Leu Gly Arg Ser Gln  
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 Trp Ile Leu Ser Leu Glu Arg Leu Val Gly Pro Gln Asp Ala Thr His  
 -1 1 5 10

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ctg cct ggg gac atc gtg cct gct ccg ggc ccc gtg ctg gcg cct acg Leu Pro Gly Asp Ile Val Pro Ala Pro Gly Pro Val Leu Ala Pro Thr 30 35 40	372
cac ctg cag aca gag ctg gtg ctg agg tgc cag aag gag acc gac tgt His Leu Gln Thr Glu Leu Val Leu Arg Cys Gln Lys Glu Thr Asp Cys 45 50 55 60	420
gac ctc tgt ctg cgt gtg gct gtc cac ttg gcc gtg cat ggg cac tgg Asp Leu Cys Leu Arg Val Ala Val His Leu Ala Val His Gly His Trp 65 70 75	468
gaa gag cct gaa gat gag gaa aag ttt gga gga gca gct gac tta ggg Glu Glu Pro Glu Asp Glu Glu Lys Phe Gly Gly Ala Ala Asp Leu Gly 80 85 90	516
gtg gag gag cct agg aat gcc tct ctc cag gcc caa gtc gtg ctc tcc Val Glu Glu Pro Arg Asn Ala Ser Leu Gln Ala Gln Val Val Leu Ser 95 100 105	564
ttc cag gcc tac cct act gcc cgc tgc gtc ctg ctg gag gtg caa gtg Phe Gln Ala Tyr Pro Thr Ala Arg Cys Val Leu Leu Glu Val Gln Val 110 115 120	612
cct gct gcc ctt gtg cag ttt ggt cag tct gtg ggc tct gtg gta tat Pro Ala Ala Leu Val Gln Phe Gly Gln Ser Val Gly Ser Val Val Tyr 125 130 135 140	660
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act cag ccc agg tac gag aag gaa ctc aac cac aca cag cag ctg cct Thr Gln Pro Arg Tyr Glu Lys Glu Leu Asn His Thr Gln Gln Leu Pro 160 165 170	756
gac tgc agg ggg ctc gaa gtc tgg aac agc atc ccg agc tgc tgg gcc Asp Cys Arg Gly Leu Glu Val Trp Asn Ser Ile Pro Ser Cys Trp Ala 175 180 185	804
ctg ccc tgg ctc aac gtg tca gca gat ggt gac aac gtg cat ctg gtt Leu Pro Trp Leu Asn Val Ser Ala Asp Gly Asp Asn Val His Leu Val 190 195 200	852
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cag gtc cag ggc ccc cca aaa ccc cgg tgg cac aaa aac ctg act gga Gln Val Gln Gly Pro Pro Lys Pro Arg Trp His Lys Asn Leu Thr Gly 225 230 235	948
ccg cag atc att acc ttg aac cac aca gac ctg gtt ccc tgc ctc tgt Pro Gln Ile Ile Thr Leu Asn His Thr Asp Leu Val Pro Cys Leu Cys 240 245 250	996



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ccc ttc agg gag gac ccc cgc gca cac cag aac ctc tgg caa gcc gcc Pro Phe Arg Glu Asp Pro Arg Ala His Gln Asn Leu Trp Gln Ala Ala 270 275 280	1092
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gac tcc ctg ggg cct ctc aaa gac gat gtg cta ctg ttg gag aca cga Asp Ser Leu Gly Pro Leu Lys Asp Asp Val Leu Leu Leu Glu Thr Arg 350 355 360	1332
ggc ccc cag gac aac aga tcc ctc tgt gcc ttg gaa ccc agt ggc tgt Gly Pro Gln Asp Asn Arg Ser Leu Cys Ala Leu Glu Pro Ser Gly Cys 365 370 375 380	1380
act tca cta ccc agc aaa gcc tcc acg agg gca gct cgc ctt gga gag Thr Ser Leu Pro Ser Lys Ala Ser Thr Arg Ala Ala Arg Leu Gly Glu 385 390 395	1428
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gat gac ttg gga gcg cta tgg gcc tgc ccc atg gac aaa tac atc cac Asp Asp Leu Gly Ala Leu Trp Ala Cys Pro Met Asp Lys Tyr Ile His 415 420 425	1524
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Val Gly Ala Leu Ala Ser Ala Leu Cys Gln Leu Pro Leu Arg Val Ala	
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gta gac ctg tgg agc cgt cgt gaa ctg agc gcg cag ggg ccc gtg gct	1812
Val Asp Leu Trp Ser Arg Arg Glu Leu Ser Ala Gln Gly Pro Val Ala	
510 515 520	
tgg ttt cac gcg cag cgg cgc cag acc ctg cag gag ggc ggc gtg gtg	1860
Trp Phe His Ala Gln Arg Arg Gln Thr Leu Gln Glu Gly Gly Val Val	
525 530 535 540	
gtc ttg ctc ttc tct ccc ggt gcg gtg gcg ctg tgc agc gag tgg cta	1908
Val Leu Leu Phe Ser Pro Gly Ala Val Ala Leu Cys Ser Glu Trp Leu	
545 550 555	
cag gat ggg gtg tcc ggg ccc ggg gcg cac ggc ccg cac gac gcc ttc	1956
Gln Asp Gly Val Ser Gly Pro Gly Ala His Gly Pro His Asp Ala Phe	
560 565 570	
cgc gcc tcg ctc agc tgc gtg ctg ccc gac ttc ttg cag ggc cgg gcg	2004
Arg Ala Ser Leu Ser Cys Val Leu Pro Asp Phe Leu Gln Gly Arg Ala	
575 580 585	
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Pro Gly Ser Tyr Val Gly Ala Cys Phe Asp Arg Leu Leu His Pro Asp	
590 595 600	
gcc gta ccc gcc ctt ttc cgc acc gtg ccc gtc ttc aca ctg ccc tcc	2100
Ala Val Pro Ala Leu Phe Arg Thr Val Pro Val Phe Thr Leu Pro Ser	
605 610 615 620	
caa ctg cca gac ttc ctg ggg gcc ctg cag cag cct cgc gcc ccg cgt	2148
Gln Leu Pro Asp Phe Leu Gly Ala Leu Gln Gln Pro Arg Ala Pro Arg	
625 630 635	
tcc ggg cgg ctc caa gag aga gcg gag caa gtg tcc cgg gcc ctt cag	2196
Ser Gly Arg Leu Gln Glu Arg Ala Glu Gln Val Ser Arg Ala Leu Gln	
640 645 650	
cca gcc ctg gat agc tac ttc cat ccc ccg ggg acn tcc gcg ccg gga	2244
Pro Ala Leu Asp Ser Tyr Phe His Pro Pro Gly Xaa Ser Ala Pro Gly	
655 660 665	
cgc ggg gtg gga cca ggg gcg gga cct ggg gcg ggg gac ggg act	2289
Arg Gly Val Gly Pro Gly Ala Gly Pro Gly Ala Gly Asp Gly Thr	
670 675 680	
taaataaagg cagacgctg	2308

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-1 1 5 10

Cys Ser Pro Gly Leu Ser Cys Arg Leu Trp Asp Ser Asp Ile Leu Cys  
15 20 25

Leu Pro Gly Asp Ile Val Pro Ala Pro Gly Pro Val Leu Ala Pro Thr  
30 35 40

His Leu Gln Thr Glu Leu Val Leu Arg Cys Gln Lys Glu Thr Asp Cys  
45 50 55 60

Asp Leu Cys Leu Arg Val Ala Val His Leu Ala Val His Gly His Trp  
65 70 75

Glu Glu Pro Glu Asp Glu Glu Lys Phe Gly Gly Ala Ala Asp Leu Gly  
80 85 90

Val Glu Glu Pro Arg Asn Ala Ser Leu Gln Ala Gln Val Val Leu Ser  
95 100 105

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110 115 120

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Pro Phe Arg Glu Asp Pro Arg Ala His Gln Asn Leu Trp Gln Ala Ala  
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Ser Leu Pro Ala Glu Ala Ala Leu Cys Trp Arg Ala Pro Gly Gly Asp  
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Pro Gly Ser Tyr Val Gly Ala Cys Phe Asp Arg Leu Leu His Pro Asp  
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Ser Gly Arg Leu Gln Glu Arg Ala Glu Gln Val Ser Arg Ala Leu Gln  
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Val Pro Ala Asp Leu Val Gln Pro Gly Gln Ser Val Gly Ser Ala Val	
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Phe Asp Cys Phe Glu Ala Ser Leu Gly Ala Glu Val Gln Ile Trp Ser	
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Gly Pro Gln Asn Ile Thr Leu Asn His Thr Asp Leu Val Pro Cys Leu	
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Cys Ile Gln Val Trp Ser Leu Glu Pro Asp Ser Glu Arg Val Glu Phe	
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Cys Pro Phe Arg Glu Asp Pro Gly Ala His Arg Asn Leu Trp His Ile	
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Cys Cys Leu Pro Gly Lys Val Thr Leu Cys Trp Gln Ala Pro Asp Gln	
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Ser Pro Cys Gln Pro Leu Val Pro Pro Val Pro Gln Lys Asn Ala Thr	
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Val Asn Glu Pro Gln Asp Phe Gln Leu Val Ala Gly His Pro Asn Leu	
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Trp Ala Asp Ser Leu Gly Pro Phe Lys Asp Asp Met Leu Leu Val Glu			
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Trp Asn Asp Asp Asn Met Gly Ser Leu Trp Ala Cys Pro Met Asp Lys			
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Tyr Ile His Arg Arg Trp Val Leu Val Trp Leu Ala Cys Leu Leu Leu			
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Ala Gly Tyr Glu Arg Leu Val Gly Ala Leu Ala Ser Ala Leu Ser Gln			
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Ala His Gly Ala Leu Ala Trp Phe His His Gln Arg Arg Arg Ile Leu			
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gac gcc ctc gcc gcc tgg ctc agc tgc gtg cta ccc gat ttc ctg caa			2007
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ctg ccc tcg cag ctg ccg gct ttc ctg gat gca ctg cag gga ggc tgc 2151  
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tcc act tcc gcg ggg cga ccc gcg gac ccg gtg gaa cga gtg acc cag 2199  
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gcg ctg ccg tcc gcc ctg gac agc tgt act tct agc tcg gaa gcc cca 2247  
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Ser Gln His Gly Ser Asp Met Gln Val Ser Phe Asp His Ala Pro His	
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Gln Asn His Met Asn Val Val Gln Cys Phe Ala Tyr Phe Leu Gln Asp	
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Lys Lys Asn Tyr Lys His Lys Gly Gly Gly Arg Gly Ser Gly Lys Gly	
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Glu Leu Phe Leu Val Ala Val Ser Ala Ile Ala Glu Lys Leu Arg Gln	
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Phe Asp Tyr Ser Cys Glu Gly Asp Val Pro Gly Ile Leu Asp Leu Ser	
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Thr Lys Tyr Arg Leu Met Asp Asn Leu Pro Gln Leu Cys Ser His Leu	
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Gly Ser Arg Arg Asn Tyr Phe Arg Ser Lys Ser Gly Arg Ser Leu Tyr	
515 520 525	
gtc gcc att tgc aac atg cac cag ttt att gac gag gag ccc gac tgg	1743
Val Ala Ile Cys Asn Met His Gln Phe Ile Asp Glu Glu Pro Asp Trp	
530 535 540	
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Phe Glu Lys Gln Phe Val Pro Phe His Pro Pro Pro Leu Arg Tyr Arg	
545 550 555	
gag cca gtc ttg gag aaa ttt gat tcg ggc ttg gtt tta aat gat gtc	1839
Glu Pro Val Leu Glu Lys Phe Asp Ser Gly Leu Val Leu Asn Asp Val	
560 565 570	
atg tgc aaa cca ggg cct gag agt gac ttc tgc cta aag gta gag gcg	1887
Met Cys Lys Pro Gly Pro Glu Ser Asp Phe Cys Leu Lys Val Glu Ala	
575 580 585 590	
gct gtt ctt ggg gca acc gga cca gcc gac tcc cag cac gag agt cag	1935
Ala Val Leu Gly Ala Thr Gly Pro Ala Asp Ser Gln His Glu Ser Gln	
595 600 605	
cat ggg ggc ctg gac caa gac ggg gag gcc cgg cct gcc ctt gac ggt	1983
His Gly Gly Leu Asp Gln Asp Gly Glu Ala Arg Pro Ala Leu Asp Gly	

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agc gcc gcc ctg caa ccc ctg ctg	cac acg gtg aaa gcc ggc agc ccc		2031
Ser Ala Ala Leu Gln Pro Leu Leu	His Thr Val Lys Ala Gly Ser Pro		
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tcg gac atg ccg cgg gac tca ggc atc tat	gac tcg tct gtg ccc tca		2079
Ser Asp Met Pro Arg Asp Ser Gly Ile Tyr	Asp Ser Ser Val Pro Ser		
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tcc gag ctg tct ctg cca ctg atg gaa gga ctc	tcg acg gac cag aca		2127
Ser Glu Leu Ser Leu Pro Leu Met Glu Gly Leu	Ser Thr Asp Gln Thr		
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gaa acg tct tcc ctg acg gag agc gtg tcc tcc tct	tca ggc ctg ggt		2175
Glu Thr Ser Ser Leu Thr Glu Ser Val Ser Ser Ser	Ser Ser Gly Leu Gly		
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gag gag gaa cct cct gcc ctt cct tcc aag ctc ctc	tct tct ggg tca		2223
Glu Glu Glu Pro Pro Ala Leu Pro Ser Lys Leu Leu	Ser Ser Gly Ser		
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tgc aaa gca gat ctt ggt tgc cgc agc tac act gat	gaa ctc cac gcg		2271
Cys Lys Ala Asp Leu Gly Cys Arg Ser Tyr Thr Asp	Glu Leu His Ala		
705	710	715	
gtc gcc cct ttg taacaaaacg aaagagtcta agcattgcc	ctttagctgc		2323
Val Ala Pro Leu			
720			
tgccctccctc tgattcccca gctcatctcc ctggttgcat	ggccacttg gagctgaggt		2383
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 <223> The 'Xaa' at location 26 stands for Lys, Arg, Thr, or Met.



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<223> The 'Xaa' at location 109 stands for Ser, Gly, Arg, or Cys.

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<223> The 'Xaa' at location 120 stands for Ile, Val, Leu, or Phe.

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Arg Asn Ser Gly Leu Tyr Asn Ile Thr Phe Lys Tyr Asp Asn Cys Thr  
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Thr Tyr Leu Asn Pro Val Gly Lys His Val Ile Ala Asp Ala Gln Asn  
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Ile Thr Ile Ser Gln Tyr Ala Cys His Asp Gln Val Ala Val Thr Ile  
 65 70 75 80

Leu Trp Ser Pro Gly Ala Leu Gly Ile Glu Phe Leu Lys Gly Phe Arg  
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Val Ile Leu Glu Glu Leu Lys Ser Glu Gly Arg Gln Xaa Gln Gln Leu  
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Ile Leu Lys Asp Pro Lys Gln Xaa Asn Ser Ser Phe Lys Arg Thr Gly  
 115 120 125

Met Glu Ser Gln Pro Xaa Leu Asn Met Lys Phe Glu Thr Asp Tyr Phe  
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Val Arg Leu Ser Phe Ser Phe Ile Lys Asn Glu Ser Asn Tyr His Pro  
 145 150 155 160

Phe Phe Phe Arg Thr Arg Ala Cys Asp Leu Leu Leu Gln Pro Asp Asn  
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Leu Ala Cys Lys Pro Phe Trp Lys Pro Arg Asn Leu Asn Ile Ser Gln  
 180 185 190

His Gly Ser Asp Met Gln Val Ser Phe Asp His Ala Pro His Asn Phe  
 195 200 205

Gly Phe Arg Phe Phe Tyr Leu His Tyr Lys Leu Lys His Glu Gly Pro  
 210 215 220

Phe Lys Arg Lys Thr Cys Lys Gln Glu Gln Thr Thr Glu Met Thr Ser  
 225 230 235 240

Cys Leu Leu Gln Asn Val Ser Pro Gly Asp Tyr Ile Ile Glu Leu Val  
 245 250 255

Asp Asp Thr Asn Thr Thr Arg Lys Val Met His Tyr Ala Leu Lys Pro

260

265

270

Val His Ser Pro Trp Ala Gly Pro Ile Arg Ala Val Ala Ile Thr Val  
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Pro Leu Val Val Ile Ser Ala Phe Ala Thr Leu Phe Thr Val Met Cys  
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Arg Lys Lys Gln Gln Glu Asn Ile Tyr Ser His Leu Asp Glu Glu Ser  
 305 310 315 320

Ser Glu Ser Ser Thr Tyr Thr Ala Ala Leu Pro Arg Glu Arg Leu Arg  
 325 330 335

Pro Arg Pro Lys Val Phe Leu Cys Tyr Ser Ser Lys Asp Gly Gln Asn  
 340 345 350

His Met Asn Val Val Gln Cys Phe Ala Tyr Phe Leu Gln Asp Phe Cys  
 355 360 365

Gly Cys Glu Val Ala Leu Asp Leu Trp Glu Asp Phe Ser Leu Cys Arg  
 370 375 380

Glu Gly Gln Arg Glu Trp Val Ile Gln Lys Ile His Glu Ser Gln Phe  
 385 390 395 400

Ile Ile Val Val Cys Ser Lys Gly Met Lys Tyr Phe Val Asp Lys Lys  
 405 410 415

Asn Tyr Lys His Lys Gly Gly Gly Arg Gly Ser Gly Lys Gly Glu Leu  
 420 425 430

Phe Leu Val Ala Val Ser Ala Ile Ala Glu Lys Leu Arg Gln Ala Lys  
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Gln Ser Ser Ser Ala Ala Leu Ser Lys Phe Ile Ala Val Tyr Phe Asp  
 450 455 460

Tyr Ser Cys Glu Gly Asp Val Pro Gly Ile Leu Asp Leu Ser Thr Lys  
 465 470 475 480

Tyr Arg Leu Met Asp Asn Leu Pro Gln Leu Cys Ser His Leu His Ser  
 485 490 495

Arg Asp His Gly Leu Gln Glu Pro Gly Gln His Thr Arg Gln Gly Ser  
 500 505 510

Arg Arg Asn Tyr Phe Arg Ser Lys Ser Gly Arg Ser Leu Tyr Val Ala  
515 520 525

Ile Cys Asn Met His Gln Phe Ile Asp Glu Glu Pro Asp Trp Phe Glu  
530 535 540

Lys Gln Phe Val Pro Phe His Pro Pro Pro Leu Arg Tyr Arg Glu Pro  
545 550 555 560

Val Leu Glu Lys Phe Asp Ser Gly Leu Val Leu Asn Asp Val Met Cys  
565 570 575

Lys Pro Gly Pro Glu Ser Asp Phe Cys Leu Lys Val Glu Ala Ala Val  
580 585 590

Leu Gly Ala Thr Gly Pro Ala Asp Ser Gln His Glu Ser Gln His Gly  
595 600 605

Gly Leu Asp Gln Asp Gly Glu Ala Arg Pro Ala Leu Asp Gly Ser Ala  
610 615 620

Ala Leu Gln Pro Leu Leu His Thr Val Lys Ala Gly Ser Pro Ser Asp  
625 630 635 640

Met Pro Arg Asp Ser Gly Ile Tyr Asp Ser Ser Val Pro Ser Ser Glu  
645 650 655

Leu Ser Leu Pro Leu Met Glu Gly Leu Ser Thr Asp Gln Thr Glu Thr  
660 665 670

Ser Ser Leu Thr Glu Ser Val Ser Ser Ser Ser Gly Leu Gly Glu Glu  
675 680 685

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Pro Leu

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His Trp Asn Thr Arg Cys Pro Leu Ala Ser His Thr Glu Val Leu Pro	
10 15 20 25	
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Ile Ser Leu Ala Ala Pro Gly Gly Pro Ser Ser Pro Gln Ser Leu Gly	
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Val Cys Glu Ser Gly Thr Val Pro Ala Val Cys Ala Ser Ile Cys Cys	
45 50 55	
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Gln Val Ala Gln Val Phe Asn Gly Ala Ser Ser Thr Ser Trp Cys Arg	
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aat cca aaa agt ctt cca cat tca agt tct ata gga gac aca aga tgc	336
Asn Pro Lys Ser Leu Pro His Ser Ser Ser Ile Gly Asp Thr Arg Cys	
75 80 85	
cag cac ctg ctc aga gga agc tgc tgc ctc gtc gtc acc tgt ctg aga	384
Gln His Leu Leu Arg Gly Ser Cys Cys Leu Val Val Thr Cys Leu Arg	
90 95 100 105	
aga gcc atc aca ttt cca tcc cct ccc cag aca tct ccc aca agg gac	432
Arg Ala Ile Thr Phe Pro Ser Pro Pro Gln Thr Ser Pro Thr Arg Asp	
110 115 120	
ttc gct cta aaa gga ccc aac ctt cgg atc cag aga cat ggg aaa gtc	480
Phe Ala Leu Lys Gly Pro Asn Leu Arg Ile Gln Arg His Gly Lys Val	
125 130 135	
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Phe Pro Asp Trp Thr His Lys Gly Met Glu Val Gly Thr Gly Tyr Asn	
140 145 150	
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Arg Arg Trp Val Gln Leu Ser Gly Gly Pro Glu Phe Ser Phe Asp Leu	

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agc agt ccc tat gat gtc cag aaa att gtg tct ggg ggc cac act gta Ser Ser Pro Tyr Asp Val Gln Lys Ile Val Ser Gly Gly His Thr Val 205 210 215			720
gag ctg cct tat gaa ttc ctt ctg ccc tgt ctg tgc ata gag gca tcc Glu Leu Pro Tyr Glu Phe Leu Leu Pro Cys Leu Cys Ile Glu Ala Ser 220 225 230			768
tac ctg caa gag gac act gtg agg cgc aaa aaa tgt ccc ttc cag agc Tyr Leu Gln Glu Asp Thr Val Arg Arg Lys Lys Cys Pro Phe Gln Ser 235 240 245			816
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gac tac agc cag cac act cag atg gtc atg gcc ctg aca ctc cgc tgc Asp Tyr Ser Gln His Thr Gln Met Val Met Ala Leu Thr Leu Arg Cys 270 275 280			912
cca ctg aag ctg gaa gct gcc ctc tgc cag agg cac gac tgg cat acc Pro Leu Lys Leu Glu Ala Ala Leu Cys Gln Arg His Asp Trp His Thr 285 290 295			960
ctt tgc aaa gac ctc ccg aat gcc acg gct cga gag tca gat ggg tgg Leu Cys Lys Asp Leu Pro Asn Ala Thr Ala Arg Glu Ser Asp Gly Trp 300 305 310			1008
tat gtt ttg gag aag gtg gac ctg cac ccc cag ctc tgc ttc aag gta Tyr Val Leu Glu Lys Val Asp Leu His Pro Gln Leu Cys Phe Lys Val 315 320 325			1056
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ctc acc tgc cgg cgc cca cag tca ggc ccg ggc cca gcg cgg cca gtg Leu Thr Cys Arg Arg Pro Gln Ser Gly Pro Gly Pro Ala Arg Pro Val 445 450 455	1440
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ccg tgg ctc tgg gcg gcg cgg acg cgc gta gcg cgg gag cag ggc act Pro Trp Leu Trp Ala Ala Arg Thr Arg Val Ala Arg Glu Gln Gly Thr 510 515 520	1632
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His Trp Asn Thr Arg Cys Pro Leu Ala Ser His Thr Glu Val Leu Pro  
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Ile Ser Leu Ala Ala Pro Gly Gly Pro Ser Ser Pro Gln Ser Leu Gly  
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Val Cys Glu Ser Gly Thr Val Pro Ala Val Cys Ala Ser Ile Cys Cys  
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Gln Val Ala Gln Val Phe Asn Gly Ala Ser Ser Thr Ser Trp Cys Arg  
                                  60                                  65                                  70

Asn Pro Lys Ser Leu Pro His Ser Ser Ser Ile Gly Asp Thr Arg Cys  
75                                  80                                  85

Gln His Leu Leu Arg Gly Ser Cys Cys Leu Val Val Thr Cys Leu Arg  
90                                  95                                  100                                  105

Arg Ala Ile Thr Phe Pro Ser Pro Pro Gln Thr Ser Pro Thr Arg Asp  
                                  110                                  115                                  120

Phe Ala Leu Lys Gly Pro Asn Leu Arg Ile Gln Arg His Gly Lys Val  
                                  125                                  130                                  135

Phe Pro Asp Trp Thr His Lys Gly Met Glu Val Gly Thr Gly Tyr Asn  
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Arg Arg Trp Val Gln Leu Ser Gly Gly Pro Glu Phe Ser Phe Asp Leu  
155                                  160                                  165

Leu Pro Glu Ala Arg Ala Ile Arg Val Thr Ile Ser Ser Gly Pro Glu  
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Val Ser Val Arg Leu Cys His Gln Trp Ala Leu Glu Cys Glu Glu Leu



190

195

200

Ser Ser Pro Tyr Asp Val Gln Lys Ile Val Ser Gly Gly His Thr Val  
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Glu Leu Pro Tyr Glu Phe Leu Leu Pro Cys Leu Cys Ile Glu Ala Ser  
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Tyr Leu Gln Glu Asp Thr Val Arg Arg Lys Lys Cys Pro Phe Gln Ser  
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Trp Pro Glu Ala Tyr Gly Ser Asp Phe Trp Lys Ser Val His Phe Thr  
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Asp Tyr Ser Gln His Thr Gln Met Val Met Ala Leu Thr Leu Arg Cys  
 270 275 280

Pro Leu Lys Leu Glu Ala Ala Leu Cys Gln Arg His Asp Trp His Thr  
 285 290 295

Leu Cys Lys Asp Leu Pro Asn Ala Thr Ala Arg Glu Ser Asp Gly Trp  
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Tyr Val Leu Glu Lys Val Asp Leu His Pro Gln Leu Cys Phe Lys Val  
 315 320 325

Gln Pro Trp Phe Ser Phe Gly Asn Ser Ser His Val Glu Cys Pro His  
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Gln Thr Gly Ser Leu Thr Ser Trp Asn Val Ser Met Asp Thr Gln Ala  
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Gln Gln Leu Ile Leu His Phe Ser Ser Arg Met His Ala Thr Phe Ser  
 365 370 375

Ala Ala Trp Ser Leu Pro Gly Leu Gly Gln Asp Thr Leu Val Pro Pro  
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Val Tyr Thr Val Ser Gln Val Trp Arg Ser Asp Val Gln Phe Ala Trp  
 395 400 405

Lys His Leu Leu Cys Pro Asp Val Ser Tyr Arg His Leu Gly Leu Leu  
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Ile Leu Ala Leu Leu Ala Leu Leu Thr Leu Leu Gly Val Val Leu Ala  
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Leu Thr Cys Arg Arg Pro Gln Ser Gly Pro Gly Pro Ala Arg Pro Val  
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Leu Leu Leu His Ala Ala Asp Ser Glu Ala Gln Arg Arg Leu Val Gly  
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Ala Leu Ala Glu Leu Leu Arg Ala Ala Leu Gly Gly Gly Arg Asp Val  
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Ile Val Asp Leu Trp Glu Gly Arg His Val Ala Arg Val Gly Pro Leu  
 490 495 500 505

Pro Trp Leu Trp Ala Ala Arg Thr Arg Val Ala Arg Glu Gln Gly Thr  
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Val Leu Leu Leu Trp Ser Gly Ala Asp Leu Arg Pro Val Ser Gly Pro  
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Asp Pro Arg Ala Ala Pro Leu Leu Ala Leu Leu His Ala Ala Pro Arg  
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Pro Leu Leu Leu Leu Ala Tyr Phe Ser Arg Leu Cys Ala Lys Gly Asp  
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Ile Pro Pro Pro Leu Arg Ala Leu Pro Arg Tyr Arg Leu Leu Arg Asp  
 570 575 580 585

Leu Pro Arg Leu Leu Arg Ala Leu Asp Ala Arg Pro Phe Ala Glu Ala  
 590 595 600

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Met Gly Ser Pro Arg Leu Ala Ala Leu Leu Leu  
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Val Asp Lys Arg Phe Ala Gly Leu Gln Trp Gly Trp Phe Pro Leu Leu  
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Val Arg Lys Ser Lys Ser Pro Pro Lys Phe Glu Asp Tyr Trp Arg His  
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agg aca cca gca tcc ttc cag agg aag ctg cta ggc agc cct tcc ctg 350  
Arg Thr Pro Ala Ser Phe Gln Arg Lys Leu Leu Gly Ser Pro Ser Leu  
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Ser Glu Glu Ser His Arg Ile Ser Ile Pro Ser Ser Ala Ile Ser His  
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Arg Gly Gln Arg Thr Lys Arg Ala Gln Pro Ser Ala Ala Glu Gly Arg  
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gaa cat ctc cct gaa gca ggg tca caa aag tgt gga gga cct gaa ttc 494  
Glu His Leu Pro Glu Ala Gly Ser Gln Lys Cys Gly Gly Pro Glu Phe  
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Ser Phe Asp Leu Leu Pro Glu Val Gln Ala Val Arg Val Thr Ile Pro  
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Ala Gly Pro Lys Ala Arg Val Arg Leu Cys Tyr Gln Trp Ala Leu Glu  
135 140 145  
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Cys Glu Asp Leu Ser Ser Pro Phe Asp Thr Gln Lys Ile Val Ser Gly  
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 Gly His Thr Val Asp Leu Pro Tyr Glu Phe Leu Leu Pro Cys Met Cys  
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 Ile Glu Ala Ser Tyr Leu Gln Glu Asp Thr Val Arg Arg Lys Ser Val  
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cct tcc aga gct ggc ctg aag ctt atg gct cag act tct ggc agt caa 782  
 Pro Ser Arg Ala Gly Leu Lys Leu Met Ala Gln Thr Ser Gly Ser Gln  
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Met Gly Ser Pro Arg Leu Ala Ala Leu Leu Leu Ser Leu Pro Leu Leu  
 -20 -15 -10

Leu Ile Gly Leu Ala Val Ser Ala Arg Val Ala Cys Pro Cys Leu Arg  
 -5 -1 1 5

Ser Trp Thr Ser His Cys Leu Leu Ala Tyr Arg Val Asp Lys Arg Phe  
 10 15 20 25

Ala Gly Leu Gln Trp Gly Trp Phe Pro Leu Leu Val Arg Lys Ser Lys  
 30 35 40

Ser Pro Pro Lys Phe Glu Asp Tyr Trp Arg His Arg Thr Pro Ala Ser  
 45 50 55

Phe Gln Arg Lys Leu Leu Gly Ser Pro Ser Leu Ser Glu Glu Ser His  
 60 65 70

Arg Ile Ser Ile Pro Ser Ser Ala Ile Ser His Arg Gly Gln Arg Thr  
 75 80 85

Lys Arg Ala Gln Pro Ser Ala Ala Glu Gly Arg Glu His Leu Pro Glu  
 90 95 100 105

Ala Gly Ser Gln Lys Cys Gly Gly Pro Glu Phe Ser Phe Asp Leu Leu  
 110 115 120

Pro Glu Val Gln Ala Val Arg Val Thr Ile Pro Ala Gly Pro Lys Ala

125

130

135

Arg Val Arg Leu Cys Tyr Gln Trp Ala Leu Glu Cys Glu Asp Leu Ser  
 140 145 150

Ser Pro Phe Asp Thr Gln Lys Ile Val Ser Gly Gly His Thr Val Asp  
 155 160 165

Leu Pro Tyr Glu Phe Leu Leu Pro Cys Met Cys Ile Glu Ala Ser Tyr  
 170 175 180 185

Leu Gln Glu Asp Thr Val Arg Arg Lys Ser Val Pro Ser Arg Ala Gly  
 190 195 200

Leu Lys Leu Met Ala Gln Thr Ser Gly Ser Gln Tyr Ala Ser Leu Thr  
 205 210 215

Thr Ala Ser  
 220

<210> 15  
 <211> 2377  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (180)..(1874)  
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<400> 15  
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 gagagccgac taccctccgg gccagtcctg tctgtccgtg gtggatctaa gaaactaga 179  
 atg aac cga agc att cct gtg gag gtt gat gaa tca gaa cca tac cca 227  
 Met Asn Arg Ser Ile Pro Val Glu Val Asp Glu Ser Glu Pro Tyr Pro  
 1 5 10 15  
 agt cag ttg ctg aaa cca atc cca gaa tat tcc ccg gaa gag gaa tca 275  
 Ser Gln Leu Leu Lys Pro Ile Pro Glu Tyr Ser Pro Glu Glu Glu Ser  
 20 25 30  
 gaa cca cct gct cca aat ata agg aac atg gca ccc aac agc ttg tct 323  
 Glu Pro Pro Ala Pro Asn Ile Arg Asn Met Ala Pro Asn Ser Leu Ser  
 35 40 45  
 gca ccc aca atg ctt cac aat tcc tcc gga gac ttt tct caa gct cac 371  
 Ala Pro Thr Met Leu His Asn Ser Ser Gly Asp Phe Ser Gln Ala His  
 50 55 60

tca acc ctg aaa ctt gca aat cac cag cgg cct gta tcc cgg cag gtc Ser Thr Leu Lys Leu Ala Asn His Gln Arg Pro Val Ser Arg Gln Val 65 70 75 80	419
acc tgc ctg cgc act caa gtt ctg gag gac agt gaa gac agt ttc tgc Thr Cys Leu Arg Thr Gln Val Leu Glu Asp Ser Glu Asp Ser Phe Cys 85 90 95	467
agg aga cac cca ggc ctg ggc aaa gct ttc cct tct ggg tgc tct gca Arg Arg His Pro Gly Leu Gly Lys Ala Phe Pro Ser Gly Cys Ser Ala 100 105 110	515
gtc agc gag cct gcg tct gag tct gtg gtt gga gcc ctc cct gca gag Val Ser Glu Pro Ala Ser Glu Ser Val Val Gly Ala Leu Pro Ala Glu 115 120 125	563
cat cag ttt tca ttt atg gaa aaa cgt aat caa tgg ctg gta tct cag His Gln Phe Ser Phe Met Glu Lys Arg Asn Gln Trp Leu Val Ser Gln 130 135 140	611
ctt tca gcg gct tct cct gac act ggc cat gac tca gac aaa tca gac Leu Ser Ala Ala Ser Pro Asp Thr Gly His Asp Ser Asp Lys Ser Asp 145 150 155 160	659
caa agt tta cct aat gcc tca gca gac tcc ttg ggc ggt agc cag gag Gln Ser Leu Pro Asn Ala Ser Ala Asp Ser Leu Gly Gly Ser Gln Glu 165 170 175	707
atg gtg caa cgg ccc cag cct cac agg aac cga gca ggc ctg gat ctg Met Val Gln Arg Pro Gln Pro His Arg Asn Arg Ala Gly Leu Asp Leu 180 185 190	755
cca acc ata gac acg gga tat gat tcc cag ccc cag gat gtc ctg ggc Pro Thr Ile Asp Thr Gly Tyr Asp Ser Gln Pro Gln Asp Val Leu Gly 195 200 205	803
atc agg cag ctg gaa agg ccc ctg ccc ctc acc tcc gtg tgt tac ccc Ile Arg Gln Leu Glu Arg Pro Leu Pro Leu Thr Ser Val Cys Tyr Pro 210 215 220	851
cag gac ctc ccc aga cct ctc agg tcc agg gag ttc cct cag ttt gaa Gln Asp Leu Pro Arg Pro Leu Arg Ser Arg Glu Phe Pro Gln Phe Glu 225 230 235 240	899
cct cag agg tat cca gca tgt gca cag atg ctg cct ccc aat ctt tcc Pro Gln Arg Tyr Pro Ala Cys Ala Gln Met Leu Pro Pro Asn Leu Ser 245 250 255	947
cca cat gct cca tgg aac tat cat tac cat tgt cct gga agt ccc gat Pro His Ala Pro Trp Asn Tyr His Tyr His Cys Pro Gly Ser Pro Asp 260 265 270	995
cac cag gtg cca tat ggc cat gac tac cct cga gca gcc tac cag caa His Gln Val Pro Tyr Gly His Asp Tyr Pro Arg Ala Ala Tyr Gln Gln 275 280 285	1043
gtg atc cag ccg gct ctg cct ggg cag ccc ctg cct gga gcc agt gtg Val Ile Gln Pro Ala Leu Pro Gly Gln Pro Leu Pro Gly Ala Ser Val 290 295 300	1091
aga ggc ctg cac cct gtg cag aag gtt atc ctg aat tat ccc agc ccc	1139

Arg Gly Leu His Pro Val Gln Lys Val Ile Leu Asn Tyr Pro Ser Pro	
305 310 315 320	
tgg gac caa gaa gag agg ccc gca cag aga gac tgc tcc ttt ccg ggg	1187
Trp Asp Gln Glu Glu Arg Pro Ala Gln Arg Asp Cys Ser Phe Pro Gly	
325 330 335	
ctt cca agg cac cag gac cag cca cat cac cag cca cct aat aga gct	1235
Leu Pro Arg His Gln Asp Gln Pro His His Gln Pro Pro Asn Arg Ala	
340 345 350	
ggg gct cct ggg gag tcc ttg gag tgc cct gca gag ctg aga cca cag	1283
Gly Ala Pro Gly Glu Ser Leu Glu Cys Pro Ala Glu Leu Arg Pro Gln	
355 360 365	
gtt ccc cag cct ccg tcc cca gct gct gtg cct aga ccc cct agc aac	1331
Val Pro Gln Pro Pro Ser Pro Ala Ala Val Pro Arg Pro Pro Ser Asn	
370 375 380	
cct cca gcc aga gga act cta aaa aca agc aat ttg cca gaa gaa ttg	1379
Pro Pro Ala Arg Gly Thr Leu Lys Thr Ser Asn Leu Pro Glu Glu Leu	
385 390 395 400	
cgg aaa gtc ttt atc act tat tgc atg gac aca gct atg gag gtg gtg	1427
Arg Lys Val Phe Ile Thr Tyr Ser Met Asp Thr Ala Met Glu Val Val	
405 410 415	
aaa ttc gtg aac ttt ttg ttg gta aat ggc ttc caa act gca att gac	1475
Lys Phe Val Asn Phe Leu Leu Val Asn Gly Phe Gln Thr Ala Ile Asp	
420 425 430	
ata ttt gag gat aga atc cga ggc att gat atc att aaa tgg atg gag	1523
Ile Phe Glu Asp Arg Ile Arg Gly Ile Asp Ile Ile Lys Trp Met Glu	
435 440 445	
cgc tac ctt agg gat aag acc gtg atg ata atc gta gca atc agc ccc	1571
Arg Tyr Leu Arg Asp Lys Thr Val Met Ile Ile Val Ala Ile Ser Pro	
450 455 460	
aaa tac aaa cag gac gtg gaa ggc gct gag tgc cag ctg gac gag gat	1619
Lys Tyr Lys Gln Asp Val Glu Gly Ala Glu Ser Gln Leu Asp Glu Asp	
465 470 475 480	
gag cat ggc tta cat act aag tac att cat cga atg atg cag att gag	1667
Glu His Gly Leu His Thr Lys Tyr Ile His Arg Met Met Gln Ile Glu	
485 490 495	
ttc ata aaa caa gga agc atg aat ttc aga ttc atc cct gtg ctc ttc	1715
Phe Ile Lys Gln Gly Ser Met Asn Phe Arg Phe Ile Pro Val Leu Phe	
500 505 510	
cca aat gct aag aag gag cat gtg ccc acc tgg ctt cag aac act cat	1763
Pro Asn Ala Lys Lys Glu His Val Pro Thr Trp Leu Gln Asn Thr His	
515 520 525	
gtc tac agc tgg ccc aag aat aaa aaa aac atc ctg ctg cgg ctg ctg	1811
Val Tyr Ser Trp Pro Lys Asn Lys Lys Asn Ile Leu Leu Arg Leu Leu	
530 535 540	
aga gag gaa gag tat gtg gct cct cca cgg ggg cct ctg ccc acc ctt	1859
Arg Glu Glu Glu Tyr Val Ala Pro Pro Arg Gly Pro Leu Pro Thr Leu	

545	550	555	560	
cag gtg gtt ccc ttg tgacaccgtt catccccaga tcaactgaggc caggccatgt				1914
Gln Val Val Pro Leu				
565				
ttggggcctt gttctgacag cattctggct gaggctggtc ggtagcactc ctggctggtt				1974
tttttctgtt cctccccgag aggccctctg gccccagga aacctgttgt gcagagctct				2034
tccccggaga cctccacaca ccctggcttt gaagtggagt ctgtgactgc tctgcattct				2094
ctgcttttaa aaaaaccatt gcaggtgcca gtgtcccata tgttctctct gacagtttga				2154
tgtgtccatt ctgggcctct cagtgccttag caagtagata atgtaagga tgtggcagca				2214
aatggaaatg actacaaaca ctctcctatc aatcacttca ggctactttt atgagttagc				2274
cagatgcttg tgtatcctca gaccaaactg attcatgtac aaataataaa atgtttactc				2334
ttttgtaaaa aaaaaaaaaa aaaaaaaaaag aaaaaaaaaa aaa				2377

<210> 16  
 <211> 565  
 <212> PRT  
 <213> Homo sapiens

<400> 16

Met Asn Arg Ser Ile Pro Val Glu Val Asp Glu Ser Glu Pro Tyr Pro
1 5 10 15

Ser Gln Leu Leu Lys Pro Ile Pro Glu Tyr Ser Pro Glu Glu Glu Ser
20 25 30

Glu Pro Pro Ala Pro Asn Ile Arg Asn Met Ala Pro Asn Ser Leu Ser
35 40 45

Ala Pro Thr Met Leu His Asn Ser Ser Gly Asp Phe Ser Gln Ala His
50 55 60

Ser Thr Leu Lys Leu Ala Asn His Gln Arg Pro Val Ser Arg Gln Val
65 70 75 80

Thr Cys Leu Arg Thr Gln Val Leu Glu Asp Ser Glu Asp Ser Phe Cys
85 90 95

Arg Arg His Pro Gly Leu Gly Lys Ala Phe Pro Ser Gly Cys Ser Ala
100 105 110

Val Ser Glu Pro Ala Ser Glu Ser Val Val Gly Ala Leu Pro Ala Glu
115 120 125



His Gln Phe Ser Phe Met Glu Lys Arg Asn Gln Trp Leu Val Ser Gln  
130 135 140

Leu Ser Ala Ala Ser Pro Asp Thr Gly His Asp Ser Asp Lys Ser Asp  
145 150 155 160

Gln Ser Leu Pro Asn Ala Ser Ala Asp Ser Leu Gly Gly Ser Gln Glu  
165 170 175

Met Val Gln Arg Pro Gln Pro His Arg Asn Arg Ala Gly Leu Asp Leu  
180 185 190

Pro Thr Ile Asp Thr Gly Tyr Asp Ser Gln Pro Gln Asp Val Leu Gly  
195 200 205

Ile Arg Gln Leu Glu Arg Pro Leu Pro Leu Thr Ser Val Cys Tyr Pro  
210 215 220

Gln Asp Leu Pro Arg Pro Leu Arg Ser Arg Glu Phe Pro Gln Phe Glu  
225 230 235 240

Pro Gln Arg Tyr Pro Ala Cys Ala Gln Met Leu Pro Pro Asn Leu Ser  
245 250 255

Pro His Ala Pro Trp Asn Tyr His Tyr His Cys Pro Gly Ser Pro Asp  
260 265 270

His Gln Val Pro Tyr Gly His Asp Tyr Pro Arg Ala Ala Tyr Gln Gln  
275 280 285

Val Ile Gln Pro Ala Leu Pro Gly Gln Pro Leu Pro Gly Ala Ser Val  
290 295 300

Arg Gly Leu His Pro Val Gln Lys Val Ile Leu Asn Tyr Pro Ser Pro  
305 310 315 320

Trp Asp Gln Glu Glu Arg Pro Ala Gln Arg Asp Cys Ser Phe Pro Gly  
325 330 335

Leu Pro Arg His Gln Asp Gln Pro His His Gln Pro Pro Asn Arg Ala  
340 345 350

Gly Ala Pro Gly Glu Ser Leu Glu Cys Pro Ala Glu Leu Arg Pro Gln  
355 360 365

Val Pro Gln Pro Pro Ser Pro Ala Ala Val Pro Arg Pro Pro Ser Asn  
370 375 380

Pro Pro Ala Arg Gly Thr Leu Lys Thr Ser Asn Leu Pro Glu Glu Leu  
385 390 395 400

Arg Lys Val Phe Ile Thr Tyr Ser Met Asp Thr Ala Met Glu Val Val  
405 410 415

Lys Phe Val Asn Phe Leu Leu Val Asn Gly Phe Gln Thr Ala Ile Asp  
420 425 430

Ile Phe Glu Asp Arg Ile Arg Gly Ile Asp Ile Ile Lys Trp Met Glu  
435 440 445

Arg Tyr Leu Arg Asp Lys Thr Val Met Ile Ile Val Ala Ile Ser Pro  
450 455 460

Lys Tyr Lys Gln Asp Val Glu Gly Ala Glu Ser Gln Leu Asp Glu Asp  
465 470 475 480

Glu His Gly Leu His Thr Lys Tyr Ile His Arg Met Met Gln Ile Glu  
485 490 495

Phe Ile Lys Gln Gly Ser Met Asn Phe Arg Phe Ile Pro Val Leu Phe  
500 505 510

Pro Asn Ala Lys Lys Glu His Val Pro Thr Trp Leu Gln Asn Thr His  
515 520 525

Val Tyr Ser Trp Pro Lys Asn Lys Lys Asn Ile Leu Leu Arg Leu Leu  
530 535 540

Arg Glu Glu Glu Tyr Val Ala Pro Pro Arg Gly Pro Leu Pro Thr Leu  
545 550 555 560

Gln Val Val Pro Leu  
565

<210> 17  
<211> 1323  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (1)..(1026)  
<223>

<400> 17

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Gln Asp Leu Pro Gly Pro Leu Arg Ser Arg Glu Leu Pro Pro Gln Phe	
1 5 10 15	
gaa ctt gag agg tat cca atg aac gcc cag ctg ctg ccg ccc cat cct	96
Glu Leu Glu Arg Tyr Pro Met Asn Ala Gln Leu Leu Pro Pro His Pro	
20 25 30	
tcc cca cag gcc cca tgg aac tgt cag tac tac tgc ccc gga ggg ccc	144
Ser Pro Gln Ala Pro Trp Asn Cys Gln Tyr Tyr Cys Pro Gly Gly Pro	
35 40 45	
tac cac cac cag gtg cca cac ggc cat ggc tac cct cca gca gca gcc	192
Tyr His His Gln Val Pro His Gly His Gly Tyr Pro Pro Ala Ala Ala	
50 55 60	
tac cag caa gta ctc cag cct gct ctg cct ggg cag gtc ctt cct ggg	240
Tyr Gln Gln Val Leu Gln Pro Ala Leu Pro Gly Gln Val Leu Pro Gly	
65 70 75 80	
gca agg gca aga ggc cca cgc cct gtg cag aag gtc atc ctg aat gac	288
Ala Arg Ala Arg Gly Pro Arg Pro Val Gln Lys Val Ile Leu Asn Asp	
85 90 95	
tcc agc ccc caa gac caa gaa gag aga cct gca cag aga gac ttc tct	336
Ser Ser Pro Gln Asp Gln Glu Glu Arg Pro Ala Gln Arg Asp Phe Ser	
100 105 110	
ttc ccg agg ctc ccg agg gac cag ctc tac cgc cca cca tct aat gga	384
Phe Pro Arg Leu Pro Arg Asp Gln Leu Tyr Arg Pro Pro Ser Asn Gly	
115 120 125	
gtg gaa gcc cct gag gag tcc ttg gac ctt cct gca gag ctg aga cca	432
Val Glu Ala Pro Glu Glu Ser Leu Asp Leu Pro Ala Glu Leu Arg Pro	
130 135 140	
cat ggt ccc cag gct cca tcc cta gct gcc gtg cct aga ccc cct agc	480
His Gly Pro Gln Ala Pro Ser Leu Ala Ala Val Pro Arg Pro Pro Ser	
145 150 155 160	
aac ccc tta gcc cga gga act cta aga acc agc aat ttg cca gaa gaa	528
Asn Pro Leu Ala Arg Gly Thr Leu Arg Thr Ser Asn Leu Pro Glu Glu	
165 170 175	
tta cgg aaa gtc ttt atc act tat tct atg gac aca gcc atg gag gtg	576
Leu Arg Lys Val Phe Ile Thr Tyr Ser Met Asp Thr Ala Met Glu Val	
180 185 190	
gtg aaa ttt gtg aac ttt ctg ttg gtg aac ggc ttc caa act gcg att	624
Val Lys Phe Val Asn Phe Leu Leu Val Asn Gly Phe Gln Thr Ala Ile	
195 200 205	
gac ata ttt gag gat aga atc cgg ggt att gat atc att aaa tgg atg	672
Asp Ile Phe Glu Asp Arg Ile Arg Gly Ile Asp Ile Ile Lys Trp Met	
210 215 220	
gag cgc tat ctt cga gat aag aca gtg atg ata atc gta gca atc agc	720
Glu Arg Tyr Leu Arg Asp Lys Thr Val Met Ile Ile Val Ala Ile Ser	

225	230	235	240	
ccc aaa tac aaa cag gat gtg gaa ggc gct gag tcg cag ctg gac gag Pro Lys Tyr Lys Gln Asp Val Glu Gly Ala Glu Ser Gln Leu Asp Glu	245	250	255	768
gac gag cat ggc tta cat act aag tac att cat cgg atg atg cag att Asp Glu His Gly Leu His Thr Lys Tyr Ile His Arg Met Met Gln Ile	260	265	270	816
gag ttc ata agt cag gga agc atg aac ttc aga ttc atc cct gtg ctc Glu Phe Ile Ser Gln Gly Ser Met Asn Phe Arg Phe Ile Pro Val Leu	275	280	285	864
ttc cca aat gcc aag aag gag cat gtg ccg acc tgg ctt cag aac act Phe Pro Asn Ala Lys Lys Glu His Val Pro Thr Trp Leu Gln Asn Thr	290	295	300	912
cat gtt tac agc tgg ccc aag aat aag aaa aac atc ctg ctg cgg ctg His Val Tyr Ser Trp Pro Lys Asn Lys Lys Asn Ile Leu Leu Arg Leu	305	310	315	960
ctc agg gag gaa gag tat gtg gct cct ccc cga ggc cct ctg ccc acc Leu Arg Glu Glu Glu Tyr Val Ala Pro Pro Arg Gly Pro Leu Pro Thr	325	330	335	1008
ctt cag gtg gta ccc ttg tgacgatggc cactccagct cagtgccagc Leu Gln Val Val Pro Leu	340			1056
ctgtttctcac agcattcttc tagcggagct ggctggtggc acccaggccc tggaacacct				1116
cttctacaga gtctctgtc tcttgagtct gagttgtcct cgctgggctt ccagagcttc				1176
agtgcctgga tgctgcaggt gacagaaaca aacatctatg accacaaaaa ctctcatcac				1236
ttcagctact tttatgagtc ggtcagatgc tctgtgtcct tagaccagtc taaatcatgc				1296
tcaaataata aaatgattat tctttgt				1323
<210> 18				
<211> 342				
<212> PRT				
<213> Mus musculus				
<400> 18				
Gln Asp Leu Pro Gly Pro Leu Arg Ser Arg Glu Leu Pro Pro Gln Phe	5	10	15	
Glu Leu Glu Arg Tyr Pro Met Asn Ala Gln Leu Leu Pro Pro His Pro	20	25	30	
Ser Pro Gln Ala Pro Trp Asn Cys Gln Tyr Tyr Cys Pro Gly Gly Pro	35	40	45	
Tyr His His Gln Val Pro His Gly His Gly Tyr Pro Pro Ala Ala Ala				

50

55

60

Tyr Gln Gln Val Leu Gln Pro Ala Leu Pro Gly Gln Val Leu Pro Gly  
65 70 75 80

Ala Arg Ala Arg Gly Pro Arg Pro Val Gln Lys Val Ile Leu Asn Asp  
85 90 95

Ser Ser Pro Gln Asp Gln Glu Glu Arg Pro Ala Gln Arg Asp Phe Ser  
100 105 110

Phe Pro Arg Leu Pro Arg Asp Gln Leu Tyr Arg Pro Pro Ser Asn Gly  
115 120 125

Val Glu Ala Pro Glu Glu Ser Leu Asp Leu Pro Ala Glu Leu Arg Pro  
130 135 140

His Gly Pro Gln Ala Pro Ser Leu Ala Ala Val Pro Arg Pro Pro Ser  
145 150 155 160

Asn Pro Leu Ala Arg Gly Thr Leu Arg Thr Ser Asn Leu Pro Glu Glu  
165 170 175

Leu Arg Lys Val Phe Ile Thr Tyr Ser Met Asp Thr Ala Met Glu Val  
180 185 190

Val Lys Phe Val Asn Phe Leu Leu Val Asn Gly Phe Gln Thr Ala Ile  
195 200 205

Asp Ile Phe Glu Asp Arg Ile Arg Gly Ile Asp Ile Ile Lys Trp Met  
210 215 220

Glu Arg Tyr Leu Arg Asp Lys Thr Val Met Ile Ile Val Ala Ile Ser  
225 230 235 240

Pro Lys Tyr Lys Gln Asp Val Glu Gly Ala Glu Ser Gln Leu Asp Glu  
245 250 255

Asp Glu His Gly Leu His Thr Lys Tyr Ile His Arg Met Met Gln Ile  
260 265 270

Glu Phe Ile Ser Gln Gly Ser Met Asn Phe Arg Phe Ile Pro Val Leu  
275 280 285

Phe Pro Asn Ala Lys Lys Glu His Val Pro Thr Trp Leu Gln Asn Thr  
290 295 300

His Val Tyr Ser Trp Pro Lys Asn Lys Lys Asn Ile Leu Leu Arg Leu  
305 310 315 320

Leu Arg Glu Glu Glu Tyr Val Ala Pro Pro Arg Gly Pro Leu Pro Thr  
325 330 335

Leu Gln Val Val Pro Leu  
340

<210> 19  
<211> 207  
<212> PRT  
<213> Homo sapiens

<400> 19

Arg Lys Val Trp Ile Ile Tyr Ser Ala Asp His Pro Leu Tyr Val Asp  
1 5 10 15

Val Val Leu Lys Phe Ala Gln Phe Leu Leu Thr Ala Cys Gly Thr Glu  
20 25 30

Val Ala Leu Asp Leu Leu Glu Glu Gln Ala Ile Ser Glu Ala Gly Val  
35 40 45

Met Thr Trp Val Gly Arg Gln Lys Gln Glu Met Val Glu Ser Asn Ser  
50 55 60

Lys Ile Ile Val Leu Cys Ser Arg Gly Thr Arg Ala Lys Trp Gln Ala  
65 70 75 80

Leu Leu Gly Arg Gly Ala Pro Val Arg Leu Arg Cys Asp His Gly Lys  
85 90 95

Pro Val Gly Asp Leu Phe Thr Ala Ala Met Asn Met Ile Leu Pro Asp  
100 105 110

Phe Lys Arg Pro Ala Cys Phe Gly Thr Tyr Val Val Cys Tyr Phe Ser  
115 120 125

Glu Val Ser Cys Asp Gly Asp Val Pro Asp Leu Phe Gly Ala Ala Pro  
130 135 140

Arg Tyr Pro Leu Met Asp Arg Phe Glu Glu Val Tyr Phe Arg Ile Gln  
145 150 155 160

Asp Leu Glu Met Phe Gln Pro Gly Arg Met His Arg Val Gly Glu Leu  
165 170 175

Ser Gly Asp Asn Tyr Leu Arg Ser Pro Gly Gly Arg Gln Leu Arg Ala  
180 185 190

Ala Leu Asp Arg Phe Arg Asp Trp Gln Val Arg Cys Pro Asp Trp  
195 200 205

<210> 20  
<211> 208  
<212> PRT  
<213> Mus musculus

<400> 20

Arg Lys Val Trp Ile Val Tyr Ser Ala Asp His Pro Leu Tyr Val Glu  
1 5 10 15

Val Val Leu Lys Phe Ala Gln Phe Leu Ile Thr Ala Cys Gly Thr Glu  
20 25 30

Val Ala Leu Asp Leu Leu Glu Glu Gln Val Ile Ser Glu Val Gly Val  
35 40 45

Met Thr Trp Val Ser Arg Gln Lys Gln Glu Met Val Glu Ser Asn Ser  
50 55 60

Lys Ile Ile Ile Leu Cys Ser Arg Gly Thr Gln Ala Lys Trp Lys Ala  
65 70 75 80

Ile Leu Gly Trp Ala Glu Pro Ala Val Gln Leu Arg Cys Asp His Trp  
85 90 95

Lys Pro Ala Gly Asp Leu Phe Thr Ala Ala Met Asn Met Ile Leu Pro  
100 105 110

Asp Phe Lys Arg Pro Ala Cys Phe Gly Thr Tyr Val Val Cys Tyr Phe  
115 120 125

Ser Gly Ile Cys Ser Glu Arg Asp Val Pro Asp Leu Phe Asn Ile Thr  
130 135 140

Ser Arg Tyr Pro Leu Met Asp Arg Phe Glu Glu Val Tyr Phe Arg Ile  
145 150 155 160

Gln Asp Leu Glu Met Phe Glu Pro Gly Arg Met His His Val Arg Glu  
165 170 175

Leu Thr Gly Asp Asn Tyr Leu Gln Ser Pro Ser Gly Arg Gln Leu Lys  
180 185 190

Glu Ala Val Leu Arg Phe Gln Glu Trp Gln Thr Gln Cys Pro Asp Trp  
195 200 205

<210> 21  
<211> 190  
<212> PRT  
<213> Caenorhabditis elegans

<400> 21

Val Lys Val Met Ile Val Tyr Ala Asp Asp Asn Asp Leu His Thr Asp  
1 5 10 15

Cys Val Lys Lys Leu Val Glu Asn Leu Arg Asn Cys Ala Ser Cys Asp  
20 25 30

Pro Val Phe Asp Leu Glu Lys Leu Ile Thr Ala Glu Ile Val Pro Ser  
35 40 45

Arg Trp Leu Val Asp Gln Ile Ser Ser Leu Lys Lys Phe Ile Ile Val  
50 55 60

Val Ser Asp Cys Ala Glu Lys Ile Leu Asp Thr Glu Ala Ser Glu Thr  
65 70 75 80

His Gln Leu Val Gln Ala Arg Pro Phe Ala Asp Leu Phe Gly Pro Ala  
85 90 95

Met Glu Met Ile Ile Arg Asp Ala Thr His Asn Phe Pro Glu Ala Arg  
100 105 110

Lys Lys Tyr Ala Val Val Arg Phe Asn Tyr Ser Pro His Val Pro Pro  
115 120 125

Asn Leu Ala Ile Leu Asn Leu Pro Thr Phe Ile Pro Glu Gln Phe Ala  
130 135 140

Gln Leu Thr Ala Phe Leu His Asn Val Glu His Thr Glu Arg Ala Asn  
145 150 155 160

Val Thr Gln Asn Ile Ser Glu Ala Gln Ile His Glu Trp Asn Leu Cys  
165 170 175



Ala Ser Arg Met Met Ser Phe Phe Val Arg Asn Pro Asn Trp  
180 185 190

<210> 22  
<211> 178  
<212> PRT  
<213> Caenorhabditis elegans

<400> 22

Phe Lys Val Met Leu Val Cys Pro Glu Val Ser Gly Arg Asp Glu Asp  
1 5 10 15

Phe Met Met Arg Ile Ala Asp Ala Leu Lys Lys Ser Asn Asn Lys Val  
20 25 30

Val Cys Asp Arg Trp Phe Glu Asp Ser Lys Asn Ala Glu Glu Asn Met  
35 40 45

Leu His Trp Val Tyr Glu Gln Thr Lys Ile Ala Glu Lys Ile Ile Val  
50 55 60

Phe His Ser Ala Tyr Tyr His Pro Arg Cys Gly Ile Tyr Asp Val Ile  
65 70 75 80

Asn Asn Phe Phe Pro Cys Thr Asp Pro Arg Leu Ala His Ile Ala Leu  
85 90 95

Thr Pro Glu Ala Gln Arg Ser Val Pro Lys Glu Val Glu Tyr Val Leu  
100 105 110

Pro Arg Asp Gln Lys Leu Leu Glu Asp Ala Phe Asp Ile Thr Ile Ala  
115 120 125

Asp Pro Leu Val Ile Asp Ile Pro Ile Glu Asp Val Ala Ile Pro Glu  
130 135 140

Asn Val Pro Ile His His Glu Ser Cys Asp Ser Ile Asp Ser Arg Asn  
145 150 155 160

Asn Ser Lys Thr His Ser Thr Asp Ser Gly Val Ser Ser Leu Ser Ser  
165 170 175

Asn Ser